

ABSTRACT OF THE INVENTION

A method of fabricating high resistivity thin film resistors. An isolation region is formed on a substrate to isolate the active regions. A polysilicon layer is formed above the substrate. A diffusion barrier layer is formed above the polysilicon layer. 5 Lightly doped ions are implanted in the polysilicon layer. The substrate is annealed at a high temperature. The diffusion barrier layer and the polysilicon layer are patterned to form a high-resistive thin film resistor. Spacers are formed on the sidewalls of the high-resistive thin film resistor.